

PHYSICS COLLOQUIUM

Partially funded by the GSFEI

Steven G. Louie, Department of Physics, UC
Berkeley & Lawrence Berkeley National Laboratory

“The Physics of Nanotubes”

Monday, October 11, 2004

4:00 P.M., Ronald Geballe Auditorium, A-102, PAA

Abstract: The restricted geometry and symmetry of nanostructures often give rise to novel properties that are also potentially useful in applications. We discuss here some of our theoretical understanding of the physical properties of nanotubes, a fascinating class of one-dimensional materials. In addition to multi-walled and single-walled carbon nanotubes, noncarbon nanotubes (such as the BN nanotubes) and other hybrid structures have been synthesized and studied. These quasi-one-dimensional objects have highly unusual electronic properties (some are conductors, others are semiconductors or insulators). The conductance of metallic carbon nanotubes is very robust against defects making them behave like quantum wires at low temperature, and some are superconductors. Nanotube junctions form interesting nanoscale device elements. The optical response of carbon nanotubes exhibits extraordinarily strong many-electron (excitonic) effects. Also, mechanical energy dissipation (or friction) on the nanoscale may be very different from that on the human scale. The physical mechanisms behind these unusual behaviors are examined.

Tuesday, October 12, 2004

Particle Theory Seminar
2:30 PM, Rm. C-421, PAT

Andreas Karch, UW Physics
“The dS/dS Correspondence”

Condensed Matter Seminar
4:00 PM, Rm. C-421, PAT

Marcel den Nijs, UW Physics
“Traffic Jams, Paper Combustion, and Polymer Localization”

Thursday, October 14, 2004

General Exam
10:00 AM, Rm. C-520, PAT

Jason Steffen, UW Physics
“Finding New Planets in Transiting Systems”

Astronomy Colloquium
4:00 PM, Rm. A-102, PAA
Ronald Geballe Auditorium

Jay Lockman, National Radio Astronomy Observatory
“A Glass Eye to Pass Around: Progress and Puzzles in the Galaxy’s Thick Gas Disk”

Friday, October 15, 2004

Science Forum
3:30 PM, Rm. A-102, PAA
Ronald Geballe Auditorium

Ray Hilborn, UW Aquatic and Fishery Sciences
“Biocomplexity and Fisheries Sustainability”

SEMINARS



October 11-15, 2004